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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/675,606 | 09/29/2003 | Jeffrey F. DeNatale | 00SC134US9 | 6342 |
| 23935 | 7590 | 10/25/2004 | EXAMINER | |
| KOPPEL, JACOBS, PATRICK & HEYBL 555 ST. CHARLES DRIVE SUITE 107 THOUSAND OAKS, CA 91360 | | | LEE, BENNY T | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2817 | |

DATE MAILED: 10/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES DEPARTMENT OF COMMERCE
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FILING DATE:

ARTICLE 1, SECTION 1

- ☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire Three (3) month(s), _____ days from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-948. |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> _____ |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-17 are pending in the application.
Of the above, claims _____ are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1, 4, 5, 8; 9, 12-14 are rejected.
5. ☒ Claims 2, 3, 6, 7, 11, 16, 17 are objected to.
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6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____ Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____ filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

The disclosure is objected to because of the following informalities: Page 5, line 10, note that – (see FIG. 3) – should follow “26” for clarity of description. Page 9, lines 29-31, note that – (see FIG. 5) – should follow “110” and “112”, respectively. Page 10, lines 1, 3, note that “114-117” and “118-121” should be respectively rewritten as – 114, 115, 116, 117 – and 118, 119, 120, 121 --; line 4, note that – (see FIG. 6) – should follow “122” for clarity. Note that reference labels ~~60, 20, 30, 40~~ⁱⁿ Figs. 1, 5, reference labels (IN, OUT) in Figs. 2, 3 and reference label “126” in Fig. 6 need description in the specification.

A ~~Appropriate correction is required.~~

Also, note that all reference labels in figs. 2, 3, 4 need to be correspondingly described in the descriptions of figs. 2, 3, 4.

The drawings are objected to because of the following: In Fig. 2, reference label – 20 – needs to be provided ; In fig. 3, reference labels (46, 48, 50, 78, 80, 82) need to be provided as per page 16, lines 23-26. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary

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to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The following claim has been found objectionable for reasons set forth below:

In claim 9, lines 3, 6, note that "formed" should be rewritten as – disposed – at each instance; line 17, note that – a respective – should precede "one" for clarity; line 20, note that – respective – should precede ~~"phase"~~ ^{MEMS}.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 5, 8 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Allison et al.

Allison et al (Fig. 4A) discloses a hybrid assembly phase shifter comprising a substrate (102) of alumina, for example, (see col. 4, l. 61) and having disposed thereon :a phase delay module with conductive transmission line paths (108, 110), a MEMS module including a plurality of MEMS (50A, 50B, 50C, 50D); and interconnections

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between the phase delay module and the MEMS module which inherently must be "low loss" to permit signal propagation therebetween.

Claims 1, 4, 8; 9, 12-14 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Barkdoll et al.

Barkdoll et al (Fig. 1) discloses a phase array antenna comprising: a plurality of radiators (14₁, 14₂, 14₆₄); a plurality of passive phase shifters units (10₁, 10₂, 10₆₄) operatively connected to a corresponding radiator. As evident from fig. 3, each phase shifter unit (10) include a plurality of series connected phase shift stages with corresponding phase shifted microstrip line segments (22, 23, 24, 25) interconnected by MEMS (28₁, 28₂; 30₁³⁰², 32₁, 32₂, 34₁, 34₂), depicted in Fig. 2, between input (26) and output (27). As evident from fig. 4, the radiators (e.g. 14_m, 14_n) and the phase shifters [which are part of quad delay unit (12)] are both disposed on an insulating substrate structure (72, 76). Moreover, note that interconnections between the phase shift units and the MEMS inherently must be low loss to permit signal propagation therebetween.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barkdoll et al in view of Allison et al.

Barkdoll et al discloses the claimed invention except that the material of the insulating substrate is not specified.

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Allison et al discloses an alumina substrate for supporting a hybrid phase shifter with MEMS.

Accordingly, it would have been obvious in view of the references, taken as a whole, to have realized the insulating substrate of Barkdoll et al as an alumina substrate, as taught by Allison et al. Such a modification would have been ~~obvious~~ considered an obvious substitution of art recognized equivalents from the same field of endeavor, thereby suggesting the obviousness thereof.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number (571)272-1764.

Lee/ds

10/18/04


Benny T. Lee
Primary Examiner